Ecosystem Olympic

Olympic National Park

Ecosystem Olympic introduces students to the three main ecosystems of Olympic National Park. Using the basic components of ecosystems as the conceptual framework, education rangers from Olympic National Park guide students though a classroom-based exploration of the park. This program is designed to be interactive, engage multiple learning styles, and reinforce key academic vocabulary. The program lasts about 1.5 hours and is targeted for a 4th grade audience. Follow-up visits to the Olympic National Park Visitor Center provide additional opportunities to experience the park and expand understandings concerning ecosystems. The goal is to get 4th grade students excited about participating in the *Every Kid in a Park* program, which offers 4th graders and their families free access to all national parks for one year.

Activities: In-class program (PowerPoint and hands-on) and optional follow up in-park visit.

Theme: Olympic National Park is a treasure chest of ecosystems where abiotic factors influence the biotic diversity in observable ways.

Goals: At the end of the program students will:

1. Know the three main ecosystems of Olympic National Park
2. Understand the components of an ecosystem and how biotic communities (outputs) are influenced by abiotic factors (inputs)
3. Understand how the National Park Service protects the ecosystems of Olympic
4. Know that science starts with making observations and formulating questions

Objectives: At the end of the program students will:

1. Describe at least two main ecosystems within the park
2. List five species and their associated ecosystem as well as a describe an interesting fact about each
3. Describe a scientific project in ONP and its importance
4. Interpret ways they can help protect Olympic National Park
5. Identify the National Park Service arrowhead and the significance of the objects within

Sample Schedule: (program can be tailored to address your needs)

15 minutes – Olympic National Park overview
15 minutes – What is an ecosystem?
10 minutes – Magic mystery boxes
40 minutes – Photo tour
10 minutes – Ecosystem Olympic Challenge and summary

Next Generation Science Standards Addressed:

Performance Expectations

3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates and reproducing.

3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.

3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.
4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.
4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.

Disciplinary Core Ideas
LS2.C: Ecosystem Dynamics, Functioning, and Resilience. When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. (secondary to 3-LS4-4)
LS4.C: Adaptation. For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)
LS4.D: Biodiversity and Humans. Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)

ESS2.A: Earth Materials and Systems. Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2-1)
ESS2.C: The Roles of Water in Earth's Surface Processes. Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. (2-ESS2-3)
ESS2.D: Weather and Climate. Scientists record patterns of weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1)**.** Climate describes a range of an area's weather conditions and the extent to which those conditions vary over years. (3-ESS2-2)
ESS2.E: Biogeology. Living things affect the physical characteristics of their regions. (4-ESS2-1)
ESS3.B: Natural Hazards. A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (3-ESS3-1) (Note: This Disciplinary Core Idea is also addressed by 4-ESS3-2.)

Science and Engineering Practices
Analyzing and Interpreting Data: Analyze and interpret data to make sense of phenomena using logical reasoning. (4-ESS2-2)

Crosscutting Concepts
Patterns: Patterns can be used as evidence to support an explanation. (4-ESS2-2)
Cause and Effect: Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS2-1)